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Running head: *Measuring children social cognitions on food choice*

Running head: *Children's social cognitions on food choice*

**Social cognitions about food choice in children aged five to eight years:
feasibility and predictive validity of an age appropriate measurement**

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Abstract

There are currently no instruments available to measure social cognitions towards food choice in children. This study aimed to test the feasibility and predictive validity of a novel measurement tool to assess food-related social cognitions.

Sixty-eight children, five to eight years old, were asked to sort cards with photographs of four fruit and four sweet/savoury snacks as a mean to measure attitudes, subjective norms, perceived behavioural control (PBC), and intention. Subsequently, food choice (dependent variable) was assessed using a laboratory food choice task in which children could gain access to sweet and savoury or fruit items, or a combination.

All participants completed the tasks successfully, demonstrating feasibility of the procedure. The order in which the cards were sorted for each construct differed sufficiently and correlations between constructs were in line with previous studies. Measures of PBC, intention, attitude, and subjective norm from the mother, but not from teachers or friends, correlated significantly with subsequent food choice.

It is possible to measure food-related social cognitions in children aged five to eight and these measures were predictive of observed behaviour. The new instrument can contribute to our understanding of psychological determinants of food choice in young children.

Keywords: Food Choice; Eating Behaviour; Social Cognitions; Reasoned Action Approach; Young Children

Social cognitions on food choice in children aged five to eight years:

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Excess dietary energy intake and consequent increases in prevalence of obesity in children are major public health concerns (Ebbeling, Pawlak, & Ludwig, 2002; Wang & Lobstein, 2006). Food intake can be conceptualised as a range of behavioural choices between more and less healthy options. The consumption of energy-dense, nutrient-poor snacks has increased considerably over the past decades (Larson & Story, 2013). While there is good evidence that regular intake of fruit and vegetables as ‘healthy snacks’ reduces the risk of non-communicable diseases (Boeing et al., 2012; He, Nowson, & MacGregor, 2006; Vainio & Weiderpass, 2006; WHO, 2002), many children are not meeting recommended guidelines for fruit and vegetable intake (Bates, Lennox, Prentice, Bates, & Swan, 2011; Vereecken, Ojala, & Jordan, 2004). For example, a national survey of Portuguese children under 10 years found that only 2% consumed fruit every day, while more than 90% consumed salty snacks or sweets on four days of the week (Rito, Paixão, Carvalho, & Ramos, 2010).

Childhood is an important stage in the development of food preferences and eating behaviours and these often track into adulthood (Craigie, Lake, Kelly, Adamson, & Mathers, 2011). There is limited knowledge about modifiable correlates of children’s food intake. Previous research has identified a range of environmental and educational factors (van der Horst et al., 2007) as well as social cognitions such as perceived modelling, dietary intentions, norms, liking and preferences (McClain, Chappuis, Nguyen-Rodriguez, Yaroch, & Spruijt-Metz, 2009) associated with children’s dietary intake behaviours and food choice.

Exploring the influence of social cognitions on behaviour has proved useful in improving intervention programmes for older children (Araujo-Soares et al., 2009). One approach which has been used to conceptualise and measure children’s social cognitions

71 regarding food intake is the Reasoned Action Approach (RAA; Fishbein & Ajzen, 2010; based
72 on theories of planned behaviour and reasoned action). The RAA hypothesises that intentions
73 and perceived behavioural control (PBC) are the main direct predictors of behaviour. In turn,
74 intentions are hypothesised to be a function of three main underlying constructs: 1) attitudes
75 toward behaviour, i.e., behavioural beliefs about positive or negative consequences of
76 performing the behaviour; 2) subjective norm, i.e., normative beliefs about the approval
77 /disapproval of relevant others; and 3) PBC, i.e., control beliefs about barriers and facilitators.
78 The RAA assumes contextual factors can influence behaviour through perceived control and
79 intention. There is an ongoing debate about the role of RAA and similar models as theories of
80 human behaviour (Ajzen, Brown, & Carvajal, 2004; Ogden, 2003; Sniehotta, Pesseau, &
81 Araujo-Soares, 2014, 2015). Most of the critique focuses on the causal assumptions, but there
82 is little disagreement that RAA measures are generally good and potentially modifiable
83 predictors of behaviour (McEachan, Conner, Taylor, & Lawton, 2011).

84 Relationships between RAA social cognitions and eating behaviours have been studied
85 in children and adolescents (Bazillier, Verhiac, Mallet, & Rouëssé, 2011; Berg, Jonsson, &
86 Conner, 2000; Conner, Martin, Silverdale, & Grogan, 1996; Fila & Smith, 2006; Hewitt &
87 Stephens, 2007; Lien, Lytle, & Komro, 2002). Intentions and PBC of eating were consistently
88 found to be predictive of eating behaviour (Berg et al., 2000; Hewitt & Stephens, 2007). To
89 our knowledge the youngest sample in which the relationship between children's RAA social
90 cognitions and eating behaviours was investigated among children aged eight to nine years
91 (Bazillier et al., 2011). Research in younger children's (under eight/nine years old) health
92 behaviours has mostly focused on parental reports and environmental influences (e.g. Dennison
93 & Edmunds, 2008; Halford, Boyland, Hughes, Oliveira, & Dovey, 2007; Kröller &
94 Warschburger, 2008; Wardle, Carnell, & Cooke, 2005). The absence of studies exploring
95 eating behaviour-specific social cognitions in children under eight years old may be due to

conventional assessment of social cognitions using Likert scales, which have been found to be poorly understood by younger children (Rhodes, Macdonald, & McKay, 2006). An age-appropriate measurement tool for younger children is desirable to investigate social cognitive alongside parental and environmental influences on food choice.

Children as young as four develop problem solving skills and start making choices, improving autonomy from their primary carers (Erikson, 1950; Mogharreban & Nahikian-Nelms, 1996). Young children are aware of the different types of food available in distinct contexts of their lives (e.g. school or home) and their preferences are influenced by the access permitted by their parents. Understanding children's cognitions and their relationship with food choice could potentially inform the development of effective interventions to support healthy eating choices; be useful in the process evaluation of interventions; or explain differential responses of children to interventions. This illustrates the importance of using a new tool that will allow the assessment of young children's food choice determinants.

A recent study by Araújo-Soares et al. (2015) measured physical activity and social cognitions related to physical activity in a sample of four to six year-olds with a newly developed measurement tool. Children were introduced to four physical activities and four sedentary activities. Eight photographic cards displaying these activities were presented to each child sequentially. They were asked to sort the cards (by removing a card at a time) into ascending order of preference for: 1) liking (attitudes), 2) perceptions on what others would prefer them to choose (subjective norms relating to friends, parents, and teachers), 3) ease of performance (PBC), and 4) intentions to engage in both types of activities. The novel measurement tool was found to be feasible in young children and predictive of objectively measured physical activity cross-sectionally and prospectively over six months. Measures of cognitions presented good retest-reliability and good discriminant and predictive validity (Araújo-Soares et al., 2015).

The aim of the present study was to test the feasibility and the predictive validity of a new measurement tool developed to assess social cognitions for food choice in young children aged five to eight years (adapted from Araujo-Soares et al., 2015). Two research questions were explored: a) can social cognitions about food be measured in young children using this tool? b) are **measured social cognitions in young children** related to each other and to behaviour as expected by theoretical assumptions?

It was expected that attitudes, social norms and PBC **would be** associated with intentions and that intentions and PBC **would be** directly associated with behaviour.

Methods

Participants and Procedure: A total of 68 children (63.2% girls) aged five to eight years participated in this study¹. The sample was recruited from a nursery and an out-of-hours children's club in the north of Portugal. In order to include normal weight, overweight and obese children, participants were also recruited from a paediatric obesity department, in a central hospital in Portugal.

The study received ethical approval from the university and from the ethical board of the hospital. Afterwards, all parents of children aged five to eight years old included in the sample were contacted. Parent information leaflets and consent forms were sent home. After written parental consent was provided, verbal assent from the child was obtained and the social cognitions assessment was conducted with each child individually in a room allocated specifically for the study. The assessment was conducted after meal time in order to control for appetite levels. The protocol was divided in four consecutive sections: 1) initial baseline

¹ In the Portuguese educational system, children first enter school if their 6th birthday occurs until the month of September of that school year.

measurements (age, sex, height, weight); 2) familiarity assessment of each snack; 3) ranking of social cognitive variables; 4) food choice task (measure of actual behavioural choice). These measures and procedures will be detailed below.

Measures: *Biometric measure:* Height was measured to 0.1 cm with the same tape measure and weight measured to 0.1 kg with the same scales. Sex and age were also recorded to calculate the BMI-percentile using the ‘child and teen calculator’ provided by the Center for Disease Control and Prevention (CDC, 2010). Sex, age, and BMI-percentile were subsequently included as covariates.

Social cognitions assessment for children: The measures were adapted from Araujo-Soares et al. (2015) to assess social cognitions related to food choice in young children. The approach is based on choices between popular healthy and unhealthy snack options.

In order to select the food options for this research, semi-structured interviews with children aged five to eight years were conducted at the hospital and school settings before the start of the main study. Children were asked what they eat as a snack and what they would like to eat if they could choose. Data saturation was reached at 17 participants and eight snacks. The snacks most frequently mentioned by children were selected for the present study (Table 1). These were four types of fruits for healthy snacks and (i.e., apple, orange, banana, and pear) and four sweet/savoury snacks (i.e., mini chocolates, mini chocolate biscuit, cheese flavoured puffs, and crisps) classified as unhealthy snacks. The interviews also revealed that children related to quantities of these snacks in terms of portions (e.g., segments of oranges, slices of fruit, individual biscuits), not in terms of weight. Snack options for this task consisted therefore of, two segments of orange (33 g), two slices each of apple (46g), banana (18 g), and pear (48 g), and 2 pieces each of mini chocolates (4 g), mini chocolate biscuit (10 g), cheese flavoured puffs (2 g), and crisps (4 g), see Appendix A.

----- Insert Table 1 about here -----

A detailed assessment protocol was developed and used with all study participants (N=68). The researcher responsible for data collection was trained by the team that initially developed this protocol as applied to physical activity (Araujo-Soares et al., 2015), in order to ensure: 1) familiarisation with the assessment protocol ; 2) appropriate and effective use of the protocol with children; 3) assessment of children's understanding, engagement and involvement on the successive assessment protocol tasks.

At the beginning of the protocol, children were asked about the familiarity of the snacks "*Do you know all these snacks?*" and "*Do you have X at home?*" in order to ensure the child was aware of each of the snacks. All children reported being familiar with all the snacks and had access to them at home at some point.

Social cognitive variables were measured by asking children to choose each card with pictures of snacks in ascending order of preference in accordance to their attitudes ("*Which snack, do you like best?*"), subjective norms relating to the mother ("*which snack, do you think, would your mum prefer you to choose first?*"), to the teacher ("*which snack, do you think, would your teacher like you to choose first?*") and to the best friend ("*which snack, do you think, would your best friend choose as his/her favourite one?*"), PBC ("*which of the snacks do you think would be easiest to eat?*"), and intentions to eat the snack ("*which snack would you like to eat most right now?*"). Measures of each variable were computed as mean rank of the four unhealthy snacks options. These measures ranked from 2.5-6.5; higher values reflect cognitions more favourable to fruit vs. sweet/ savoury snacks².

² The highest ranking of the four unhealthy snack options would be 1, 2, 3 and 4 (mean rank: 10/4=2.5) and the lowest ranking would be 5, 6, 7 and 8 (mean rank: 26 / 4 = 6.5). Higher mean rankings of unhealthy snacks

After each task was introduced, the researcher assessed the child's understanding of the task. The researcher asked each participant to explain using their own words what was requested from the task. The child's understanding was rated by the researcher on a scale of 0-100%, 0 representing no understanding and 100% representing that "the child accurately described what was requested by the assessor". In order to ensure protocol delivery and coding consistency, data was collected by the same researcher over the course of the study.

Food choice: Over recent years behavioural choice tasks have been used to obtain robust outcomes in different areas such as physical activity (Epstein, Smith, Vara, & Rodefer, 1991), smoking (Epstein, Bulik, Perkins, Caggiula, & Rodefer, 1991), and food choice (Goldfield & Epstein, 2002; Smith & Epstein, 1991). Actual food choice was measured objectively through an observational behavioural choice task using a modified version of the behavioural choice task (Goldfield & Epstein, 2002; Smith & Epstein, 1991). In the present study, the portions of each food were shown before the tasks to ensure that the child was aware of the type and size of each option. Subsequently, the child was required to make a choice between their second³ favourite healthy (fruits) and unhealthy (sweet/ savoury snacks) options (based on the intention measure) by drawing a circle in empty boxes. Children were asked to decide if they preferred to undertake the work of drawing circles in order to obtain access to the healthy or the unhealthy option. For each option, the baseline schedule was to draw the circles in 20 boxes. After each of the five consecutive trials, the work required (behavioural costs) for a portion of the previously chosen option was doubled and the behavioural cost for the alternative option was kept constant. For instance, to start a child would have chosen to

therefore indicate more favourable cognitions towards healthy snacks (as an inverse of the ranking for unhealthy snacks).

³ The first choice was used subsequently, after the food choice task, in order to test the willingness of engaging in a delay of gratification task. Please note that the results of this task are not reported here because it is not part of the aims of the present paper.

work for a chocolate instead of an apple in the first trial, then in the second trial the child would have to choose to draw 40 circles if choosing to continue to work for the chocolate cookie or could switch to the apple where there are still only 20 boxes required in order to access one portion of it. Children thus made choices if the perceived reinforcing value of the initially preferred option was strong enough to be maintained under increased behavioural costs. At the end of the assessment, the maximum amount of food that each child could access was five portions, which could be 5 portions of one food type, or a mixture of both. Snack portion sizes were two pieces of each food (i.e., two slices of each fruit, two chocolate balls, two mini chocolate biscuits, two puffs, and two crisps) for each option. One portion of each snack-type was photographed to produce eight cards (see appendix A). At the end of the task, the child could have chosen: 1) five unhealthy options; 2) four unhealthy option and one healthy; 3) three unhealthy options and two healthy; 4) two unhealthy option and three healthy; 5) one unhealthy option and 4 healthy; 6) five healthy options. In order to facilitated the analysis, food choice was coded in a scale from -3 (sweet/savoury food) to 3 (fruits) describing the absolute difference in sweet/savoury and fruits participants have chosen in total. Higher (positive) scores indicated more fruit chosen.

Measures of each RAA variable were computed as mean rank. These measures ranked from 2.5-6.5; higher values reflected more favourable cognitions to healthy options in comparison with unhealthy options.

Statistical Procedure: To evaluate the first research question, aiming to assess relationships between social cognitions and food choice, a bivariate correlation was undertaken by using the *Statistical Package for the Social Sciences 19* (SPSS). For the second question, a path analysis was conducted using the software *Mplus 7* (Muthen & Muthen, 2006) which reflects the main assumptions proposed by RAA (see Figure 1): a) intention was regressed onto attitudes, subjective norms, and PBC, which were hypothesised to have an indirect relationship

with behaviour mediated by intention; b) PBC was also specified to have a direct effect on objectively measured food choice; c) BMI-percentile, sex, and age were included as covariates. Behaviour was specified as food choice; i.e. the amount of food gained at the end of the assessment. Fully standardised (β) and unstandardised coefficients (B) were reported. Statistical inference was based on bootstrapping procedure with $m = 10,000$ resamples, which makes no assumptions about the sampling distribution. Model fit was assessed using model chi-square, comparative fit index (CFI), and standardized root mean square residual (SRMR). Adequate fit was defined as chi-square p-value over .05, CFI over .95 and SRMR below .08 (Hooper, Coughlan, & Mullen, 2008). According to recent recommendations, the root mean square error approximate (RMSEA) is not reported here as it has been shown to be inaccurate for models with few degrees of freedom models, especially those with small sample sizes (Kenny, Kaniskan, & McCoach, 2014). There were no missing data in the variables under study.

Results

The sample comprised 52.9% non-obese and 47.1% obese children. The average BMI-percentile was 84.41 ($SD = 22.30$). 63.2% were girls and the average age was 6.43 years ($SD = .89$), ranging from five to eight years. Engagement in the tasks was coded by the trained researcher on a scale from 0 to 100 %. This scale was based on child reported understanding of the tasks, as well as on the completion of the procedure. The researcher recorded in all cases that the children were fully able to understand the protocol and were fully engaged in all tasks.

Table 2 presents the descriptive results and the observed correlations between the variables in the study. In this table non-parametric bootstrapped correlation coefficients are displayed. Healthy and unhealthy snacks were chosen with similar frequency in the initial choice (44.1% have chosen to get a higher amount of a healthy option). However, at the end of

the task, the majority of the children (66.2%) have chosen higher amounts of unhealthy options.

Variable correlations ranged from $r = .43$ to $r = .73$. Social cognitive variables correlated substantially with intention and with each other. Intention, PBC, attitudes, subjective norms (mother) also correlated significantly with objectively measured food choice. No differences in accordance to weight status were found.

----- Insert Table 2 about here -----

The path analysis (Figure 1) showed that attitudes ($\beta = .37$; $B = .39$, $p = .040$), subjective norm - mother - ($\beta = .28$; $B = .50$, $p = .013$) and PBC ($\beta = .35$; $B = .42$, $p = .014$) were positively associated with intention ($R^2 = .66$). PBC showed a positive direct relationship with behaviour ($\beta = .33$; $B = .61$, $p = .009$), however intention was not associated with behaviour ($\beta = .06$; $B = .10$, $p = .658$). All indirect paths via intention on behaviour were non-significant ($p > .05$). BMI-percentile, age, and sex which were used as covariates were not significantly associated with food choice and only BMI-percentile ($\beta = .18$; $B = .01$, $p = .015$) was associated with intention, that is children with a higher BMI percentile had higher intentions to eat healthily. The path model fitted the data well ($\chi^2(4) = 7.45$, $p = .110$, SRMR = .03, CFI = .97). Despite the small sample size, fit indices ranged within recommended levels (Hooper et al., 2008).

----- Insert Figure 1 about here -----

Discussion

The present study aimed to test the feasibility and predictive validity of a novel assessment to measure food-related social cognitions in young children. To date, social cognitions have been assessed through self-reports on Likert scales and that procedure excluded children younger than eight years old from studies investigating personal cognitions about food choices (e.g. Bazillier et al., 2011). The present study showed that a measurement

procedure based on sorting cards representing the most frequently eaten food options in a choice paradigm was acceptable and feasible to children. Moreover, correlations between constructs and path analysis results were in line with theoretical assumptions of the RAA. The relationships found in the inter-correlation analyses showed that the variables were related in accordance with theoretical assumptions and previous research in older children and adolescents (e.g. Bazillier et al., 2011; Berg et al., 2000; Hewitt & Stephens, 2007). Regarding the path analysis; attitudes, subjective norms relating to the mother and PBC were associated with intention, and, in turn, PBC was also related to the food choice. In the multivariate path model PBC rather than intention showed the strongest relationship with behaviour.

In the present study, children's intentions were related to their attitude and subjective norms relating to their mother. These results highlight the role of the mother at this stage of life, indicating that in younger children the mother may be perceived as an important model for food choice (Birch & Fisher, 1998; Savage, Fisher, & Birch, 2007). In contrast, friends' norms were found to show stronger relationships with intentions in older children aged eight to nine years (Bazillier et al., 2011).

Overall, this study suggests that children's social cognitions towards food can be measured with a simple choice paradigm based on sorting cards representing food choice.

Strengths and Limitations: The sample size is sufficient to test for the substantial relationships usually found between RAA variables, but limits the statistical power so that analyses by subgroups, such as sex or BMI, are not feasible. The key purpose of this study was to show that the rank order in which children sorted the options when asked for their liking (attitudes), perceptions of what others would prefer them to choose (subjective norms relating to friends, parents, and teachers), easy to eat (PBC), and intentions to eat, were sufficiently

different; related to each other in plausible ways; and correlated with an observational measure of behaviour.

Practical Implications and Future Studies: A better understanding of social cognitive factors in young children might help future health promotion and prevention programmes. Current interventions based on parents' perceptions and changes in the environment frequently ignore children's perceptions (Dennison & Edmunds, 2008; Halford et al., 2007; Kröller & Warschburger, 2008; Wardle et al., 2005). Adding a new focus to future interventions programmes, namely influencing children's social cognitions, will involve the child as an agent of their own behaviour (Bandura, 2001), or, at least, help clarifying from what age onwards such agency can be expected. In addition to these first insights obtained from this study, further studies amongst children are needed to explore the predictive capability, the retest-reliability, and other measurement aspects of this assessment tool (Araujo-Soares et al., 2015). Furthermore, testing the predictive validity of the tool in a longitudinal study design will be an important future step. This study evaluated direct measures of attitudes, subjective norms and PBC. These measures have utility for description and prediction, but they do not reveal the underlying specific behavioural, normative and control beliefs the children referred to when creating the rank orders. For example, given the behavioural choice task offering convenient and easily accessible options without major external barriers, it is not certain what caused the children to perceive some options as easier to consume than others. Ajzen (2002) proposes measurement procedure to assess these specific beliefs in order to explain the direct RAA measures and future research is needed to develop and evaluate methods of assessing these specific beliefs in children to add an explanatory level to the assessment of direct RAA social cognitions about food choice. In the present study, food choice was not balanced in terms of weight and / or energy content. It might be useful to consider the choices offered in terms of

327 their content in studies which seek to predict *ad libitum* behaviour relevant for energy balance
328 or health.

329 **Conclusions:** The present study showed evidence of the feasibility of a newly developed
330 assessment tool for directly measuring food-related social cognitions in young children. These
331 findings will contribute to future research in young children to improve the understanding of
332 the effect of social cognitions on eating behaviours.

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Acknowledgements

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Author Contribution

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VAS, SFM, FFS conceived and designed the work. SFM collected the data. PG and SFM analysed the data. VAS, SFM, FFS, PG and SG contributed to the interpretation of the data. SFM, VAS and PG drafted the article. All authors critically reviewed the article and approved of the final version to be submitted.

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Table 1*Nutritional value of food items (serving size: 100g)*

Snack	Description	Nutritional Value	Total Fat (g)	Carbohydrates (g)	Protein (g)
Apple	Fruit	57kcal	0.5	13.4	0.2
Orange	Fruit	42 kcal	0.2	8.9	1.1
Pear	Fruit	41 kcal	0.4	9.4	0.3
Banana	fruit	95kcal	0.4	21.8	1.6
Kit-Kat Pop Choc	milk chocolate with a ball format	517kcal	28.6	58.5	6.2
Mini Filipinos biscuit	chocolate coated biscuits	509kcal	26	62	6.7
Cheetos	cheese flavoured puffs	503kcal	27	59.2	5.1
Pringles	potato-crisps	522kcal	34	51	3.8

Note: NA = information not available; Nutritional value of sweet/savoury snacks retrieved in label of their package and fruits: see Martins (2007). Snack options for this task consisted on two segments of orange (33 g), two slices each of apple (46g), banana (18 g), and pear (48 g), and 2 pieces each of mini chocolates (4 g), mini chocolate biscuit (10 g), cheese flavoured puffs (2 g), and crisps (4 g), see Appendix A.

Table 2

Intercorrelations, Means, and Standard Deviations for Socio-cognitions, Food Choice, and Socio-demographic Variables

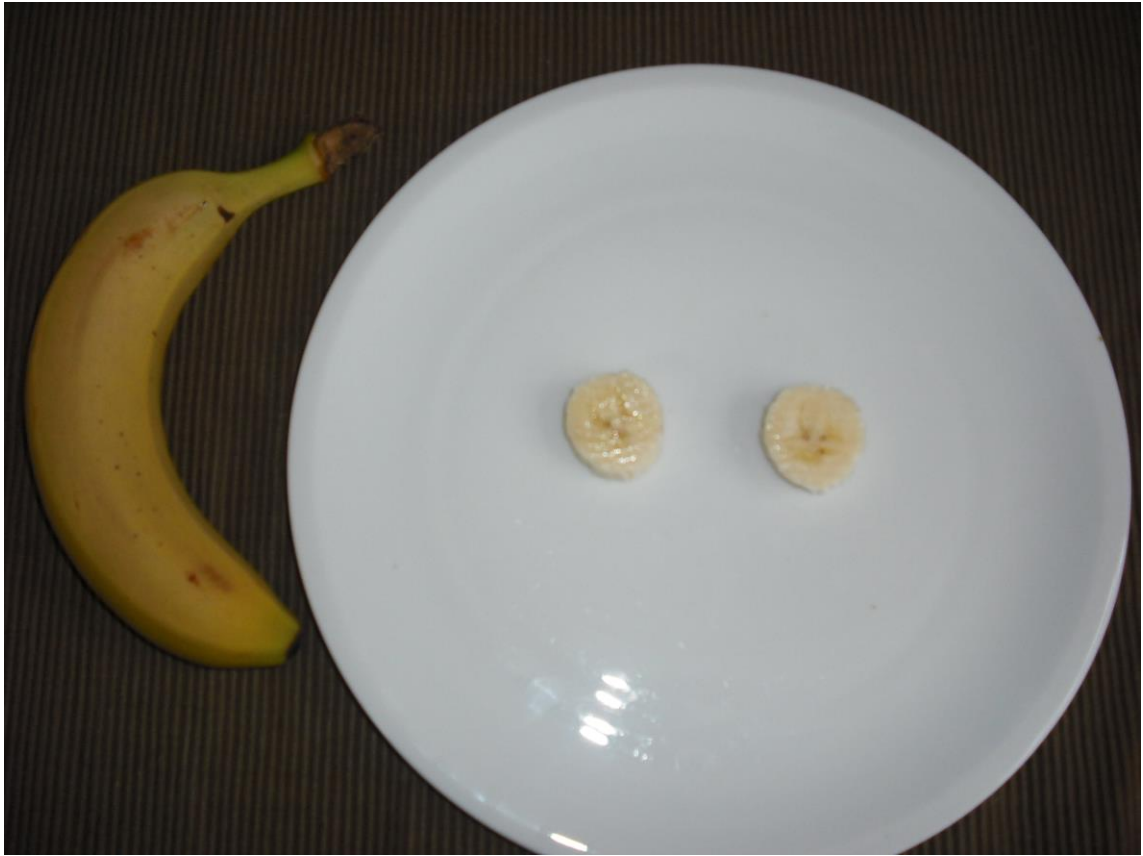
	1	2	3	4	5	6	7	8	9
1. Food choice									
2. BMI-percentile	.19								
3. Age	.30*	.19							
4. PBC	.41***	.30*	.20						
5. Intention	.33**	.15	.26*	.63***					
6. Attitude	.43***	.21	.33**	.63***	.73***				
7. Subjective norms (mother)	.29*	.27*	.26*	.22	.49***	.45***			
8. Subjective norms (friend)	.06	.19	.19	.41**	.46***	.46***	.24*		
9. Subjective norms (teacher)	.18	.04	.18	.22	.31*	.29*	.38**	.19	
Mean	-.71	84.41	6.43	5.38	4.84	5.12	6.18	4.72	6.14
SD	2.29	22.30	0.89	1.26	1.50	1.41	0.86	1.55	0.81

Note: Non-parametric bootstrapped correlation coefficients are displayed. PBC = Perceived Behavioural Control; BMI = Body Mass Index; $N = 68$. * $p < .05$; ** $p < .01$; *** $p < .001$.













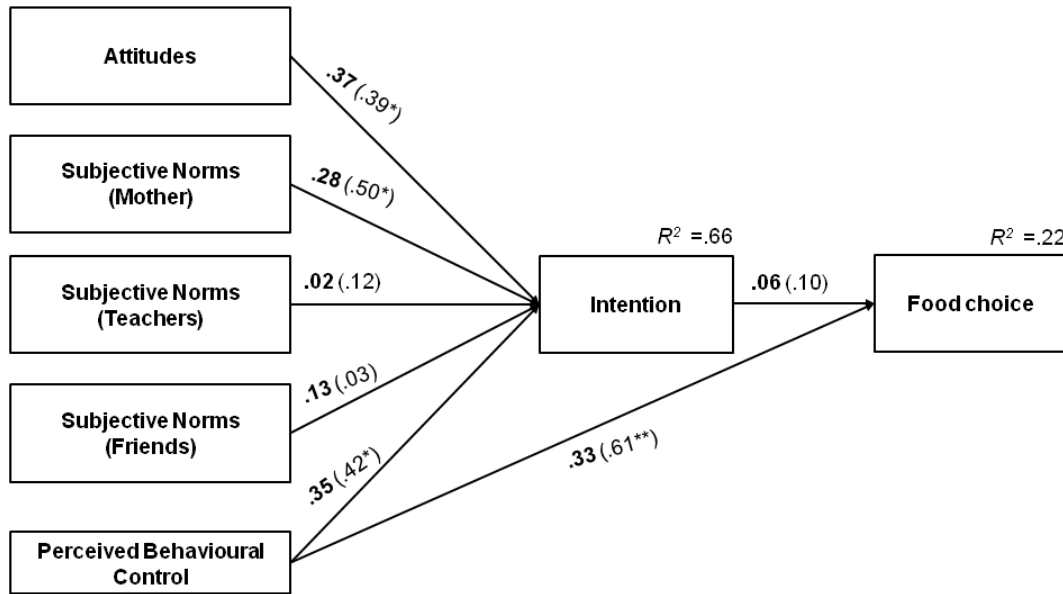


Figure 1. Path analysis of the construct relationships proposed by RAA

Note. Bootstrapped fully standardised (shown in bold; bootstrapped significance levels for these cannot be provided) and bootstrapped unstandardised (shown in brackets) coefficient estimates were presented. To simplify the Figure paths from the covariates, i.e. BMI-percentile, age, and sex, on intention and on food choice were not drawn. Higher score in food choice = higher healthy food chosen during the food choice task. Model fit: $\chi^2(4) = 7.45$, $p = .110$, SRMR = .03, CFI = .97. * $p < .05$; ** $p < .01$. $N = 68$.